

**Mullica Watershed Planning Project
Wastewater Management Systems Technical Focus Group Meeting – September 26, 2002
Summary of Discussion**

TFG Members Attending (* indicates Steering Committee member)

*Rich Bethea (RB), Pinelands Municipal Council, Bass River Twp.
Barry Beaumont (BB), Beaumont Engineering
Eleanor Krukowski (EK), NJDEP - Div. of Water Quality, Bureau of Nonpoint Pollution Control
John Bunnell (JB), Research Scientist, NJ Pinelands Commission
Peter Casey (PC), Executive Director, National Small Flows Clearinghouse
Rick Dovey (RD), Executive Director, Atlantic County Utilities Authority
Mike Gavio (MG), Burlington County Health Dept.
David A. Henry (DH), Montgomery Township Health Dept.
Lawrence Hepner (LH), Department Chair, Agronomy & Env. Science, Delaware Valley College
Michael Kelsey (MK), Director, Community & Business Programs, USDA - Rural Development
Joseph Kowalski (JK), Commissioner, NJ Pinelands Commission
Lee Rosenson (LR), Pinelands Preservation Alliance
David Watson (DW), Environmental Resolutions

Pinelands Commission Staff Attending

Larry Liggett [LLL] (moderator)	Ed Wengrowski [EW]
John Stokes [JCS]	Rich Federman [RF]
Robert A. Zampella [RAZ]	Chris Krupka [CK]

[indicates comments made by staff]

(indicates comments made by members of the public)

New Pinelands septic rules

RD: What are the Pinelands regulations if there is an old septic system and new construction occurs?

[LLL]: **[There are no requirements to retrofit the system.]**

[EW]: **[If a system has failed, DEP requires the system to be upgraded to Chapter 199 standards.]**

LR: What are the seasonal high water table (SHWT) requirements for siting septic systems?

[EW]: **[State regulations say that there must be at least 2 feet unsaturated soil; Pinelands regs require at least 5 feet unsaturated soil. At 4 feet there is primarily removal of pathogens, but no renovation.]**

[LLL]: **[What systems are currently out there, in what condition?]**

BB: In South Burlington County, systems are 15-20 years old, with lots of older technologies... Average length of reliable use is ~20 years... Many systems reaching age of failure... Lack of maintenance is an issue.

[EW]: **[Do most of the failing systems maintain a 4-foot zone of unsaturated soils?]**

BB: Most do, some touch the water table... Health Dept. must enforce code... Mound failures occur due to fill beneath the mounds... Testing has been done for the Health Dept. since 1990... Stone replacement is

now common, used as sort of an “upgrade” of the system—actually using old, technology which is not effective for removing nitrates.

[EW]: [When a failing system is found just prior to a sale, buyer thinks they’re getting a “new” system, but generally it’s actually 1960s technology.]

EK: “Repair” doesn’t mean a new system... DEP is working to clear up misunderstandings, trying to help Health Depts.

MG: All “repairs” must be approved by the Health Dept.... Won’t allow stone replacement in some cases... 4/5 of repairs don’t involve home sales... Bio-mat is key!

DH: Engineer’s certification is needed for certain repairs... 2-4 feet sometimes allowed to be replaced to avoid silting... Not all townships are up to speed

LR: Do changes in codes require more land? Is this a problem for homeowners with non-conforming uses?

MG: Yes, can’t always get the proper new setbacks

[LLL]: [Where are “hotspots”/problem areas in the watershed?]

JB: No hotspots in Burlington County identified in relation to failing systems... Some high nitrate readings in streams... How do you tease apart different land uses?

MG: Presidential Lakes was tested (30-40 wells) – no elevated nitrate readings

BB: Browns Mills [not in watershed] has problems – high water table

RD: Atlantic City has not had any recent problems... Southern Egg Harbor had problems about 20 years ago

LR: Pinelands Commission Pilot Program deals with new systems – there are still many more existing “old” systems. No monitoring! Only public health is considered, but environmental health is ignored. How can we increase monitoring and inspections of all systems?

JK: We don’t yet have enough information to determine that standard septic systems are not sufficient, but we do have a pilot program to test alternative septic systems that could be used for retrofitting; however, these systems need lots of operation and maintenance... And we have identified one alternative for a better type of “Wisconsin mound system”: similar to pressure dose, has a denitrification step, sits on topsoil and goes through sand and carbon in topsoil.

LR: The concern is failing standard systems... We need to protect water sources from failing systems

[EW]: [Wisconsin mound system is also called “turkey mound” in Pennsylvania... How well do they work in PA?]

LH: Started with Bucks County Health Dept. and introduced elevated sand mounds... Lots of failures... Started chisel plowing to break up soil and increase permeability, created improved mounds... Keep 4 feet of renovation material (more biological renovation, but could also have a denitrifying effect)... Trying soil-based beds to treat wastewater – biological cleanup... Do not yet have numbers on denitrification... Also looking at drip systems, which allow soil to complete the denitrification process (nitrify in upper 20 inches, then denitrify)... Most of my work is with soil-based systems

[LLL]: [Management is key – how do we replace failing systems and manage the process?]

DH: Montgomery Twp. has had a septic management system since 1988 (for altered and repaired systems) – database of systems, charge \$5/year for septic license – administrative fee now increased to \$20/year, includes onsite inspection (“walkover,” looking for physical signs of malfunction and looking at inspection ports, but ports don’t always indicate if there is a malfunction)... If no malfunction, we issue 3-year license... Resident must have systems pumped every 2 years, or prove it is not needed (extension to 6 years)... All info goes into database... Eventually we will have the whole town in the management system (now have about half of 2500 total)... Noncompliance results in a \$15/month late fee (we have about 95% compliance)... In the Mullica watershed, there are more than 3 county Health Depts. – need cooperation plus monitoring... County Health Depts. will be aware of well nitrate problems because of a new law requiring well testing—this can also alert the Health Dept. to septic problems – but only applies to homes being sold... Complaints are another source of info. about problems

[LLL]: [Are there national management programs?]

PC: Management is essential for mechanical systems... A study of alternative technologies in Arizona indicated that much better management is needed... I suggest that we identify sources of nutrients – nitrates are probably coming mostly from agriculture more than septic, and there may also be aerial deposition.

[LLL]: [Difficult to determine sources of nitrate because we have both development and agriculture in the headwaters area of the watershed.]

EK: USGS study in progress is showing sources of nitrate according to land uses... Links to sources (suburbs, septic, animals, etc.)

JK: Do we know the time transport for the Mullica?

RAZ: The further away from the stream, the further down water goes... USGS is trying to develop models to determine how quickly pollutants reach the stream... We don’t yet have a handle on the time needed for this process in the Mullica

PC: Find out what is the controlling nutrient – often it is phosphorous... Determine whether we need a phosphorous control program

RAZ: Phosphorous tends to be low in the Mullica... Streams with elevated nitrogen also have elevated pH, specific conductance

Community Wastewater Systems

RD: Elwood School has had a discharge field for 8-9 years – working well, the kids play soccer on it... School needed to expand, asked ACUA to be involved... ACUA suggested that they would manage system on a fee basis, but later school contracted with someone else. Contrast this experience to the Oaks at Weymouth (senior development)... Built package treatment plant without approvals from ACUA because ACUA believes it doesn’t work (DEP did approve)... Homeowners’ association has other priorities, while the Elwood School Board is very concerned about the proximity of their kids to the wastewater system... ACUA has no reason to disapprove package treatment plants, but they do review them – believe they can work well and be more effective than sewers

- RB: In the Village of New Gretna, have all septics, all wells, small lots... Problems are failures (we know about them) and impacts on groundwater (not as obvious)... In my own neighborhood, outside the Pinelands, we had a high failure rate and put in a community system, which has been largely successful... New Gretna has businesses which cannot expand on septic (New Gretna House can only open one floor, while pub across the street has plans to re-open but also has a failing system)... Also can't expand school... Problems: 1) sustainability of the town and 2) residents' quality of life... Interested in a community system with monitoring, etc... Need solutions to 1) failing systems on small lots and 2) economic liability and environmental effectiveness
- RD: Originally Elwood School looked to include other facilities on their system – became bigger issue: more land, off-school property, etc.... In New Gretna, need to find a suitable location, then you involve other people – NIMBY syndrome unless everyone feels they have a stake in solving the problem
- RB: Easier to “sell” a community system to the public... Shared costs, shared benefits... School and businesses can expand, but town retains control and management responsibilities
- DH: Residential sewer fees are included in tax bills... Montgomery Twp. has a few commercial community systems (e.g., the Bloomberg Company has been successfully using a “cyclette” system)... Some systems are reaching the end of their useful lives and must then be tied to sewer (e.g., grease from restaurants impacts systems)... Township did not put restrictions on establishment of commercial systems (DEP already regulates)... Montgomery also has 2 residential community systems – problems with maintenance responsibility (needed contract with homeowner's association outlining responsibilities and penalties)

[LLL]: [How can small community systems be financed?]

- DW: Municipalities have planning boards etc. – 20-year financing is typical... Suggestion: have municipalities identify centralized areas for systems and do some up-front feasibility studies... If a site is picked out ahead of time, developers could share the area

[LLL]: [Do you have any examples of pre-engineering studies?]

- DW: No, but most towns have potentially suitable areas... Developers will use the most convenient spot for them... It's difficult for municipalities to get info about hotspots, e.g., unknown to municipality until there are at least 10-15 problems reported... Try to get municipal, MUA & other info about septic problems so you can plan ahead... The county and DEP have different databases... Need: linked databases, shared info among county, DEP & municipalities... Mandatory well testing results are sent to the county, so the municipality isn't necessarily aware of them

RD: Testing labs must report to DEP

MG: DEP reports failures to local Health Dept., but is not allowed to share the info with neighbors

DW: Municipalities should identify problem areas

DH: Municipalities can incorporate sewer master plan info from county into their master plans

[LLL]: [What examples are there of community systems in small communities?]

- MK: Problem: studies required from regulatory agencies have a high cost... Very little grant money available... USDA has a limited grant program (affordability-driven, community must be able to

service a 40year loan, must have reasonable operating costs)... E.g., “Grassy Sound” (near Wildwood) has 55 users who formed an association and through CAFRA to get state funding (high costs = \$3,000/user/year)... Ultimate plan is to connect to North Wildwood... Need 1) the will to pursue long-term and 2) good system

[LLL]: [Which systems are cheap and reliable?]

LH: Conventional septic systems are cheapest and most reliable overall... Newer technologies have extra monitoring & installation costs... Tap into National Small Flows institutions doing research (North Carolina, etc.)... How sure are we that a new technology will perform in other situations? Try out a few scenarios and decide (limited # of test sites at first): 1) look at new technologies; 2) look at specific site conditions; 3) install, monitor and assess

EK: DEP is trying to connect with national programs and do assessments of different septic systems (including operational costs)... Pull info together from research centers, manufacturers, etc. to get an idea of the costs for users, then let people pick out the most appropriate system for themselves

[LLL]: [Is anyone looking at small community system technologies and costs?]

EK: Not in the same way as with septic systems... Many consultants have this info, and you can go to package plants and ask about costs (DEP has a list of package plants available)

JK: Is there funding for feasibility studies from the Infrastructure Trust Fund?

RD: State Infrastructure Trust Fund: part of the engineering costs can be reimbursed, but no guarantee

[LLL]: [Pinelands Infrastructure Trust Fund is for capital costs, but only in the Regional Growth Area... An additional \$70 million was proposed to be added for villages & schools, but it didn't go forward]

RB: Small communities can't afford loans – economics are limiting

MK: Farm Bill provides authority for some planning money – possible funding source?

PC: New Gretna might qualify for a National Community Demonstration Project

Public Comment

(Rich Bizub, PPA): Health Dept. would have to come out to witness soil suitability testing – how often do the Health Depts. actually go out onsite?

MG: 50 – 60% of the time. Ocean Co. doesn't have inspectors for installation.

(Rich Bizub): Will a long-term program to oversee special septic systems come out of this TFG?

[LLL]: [No – this is only an advisory group.]

(Rich Bizub): We've talked about the cumulative impacts of wastewater and septic systems. Cumulative impacts of lawn fertilization are also important – where are they dealt with?

JK: Recommend looking at specific impacts first, then cumulative

(Nelson Euler, ASPIRE): When are we getting “off the ground” (action, costs, etc.)?

[EW]: **[The Pinelands alternative septic program is off the ground: it is now law (as of 8/5/02) and approved by DEP... Vendors are now submitting info, training program planned for 10/29/02... 19 model ordinances drafted]**

(Harry Monesson, ASPIRE): Property rights are important... Need new septic technologies to reduce nitrates (e.g., the U.K. has ebb and flow technology that uses plants to neutralize nitrates)... Goose excrement is a problem... Non-native species have been around throughout history

(**Doug ?**, Mercer County Health Dept.): What about re-use of wastewater, and incentives for use of alternate technologies?

[LLL]: **[We’re looking at the possibilities for re-use and importation of wastewater... Nitrate standards are 2 ppm at property line, 14 ppm out of tank]**

(Tammy West, Watershed Ambassador): Is there an established TMDL for streams in the Mullica?

JK: No, but there should be... What should regulations look like to meet water quality standards?

ACTION ITEMS / NEXT STEPS

1. Pinelands Commission staff will work with appropriate TFG members and other experts to obtain requested data/information:
 - ✍ Correlate failing systems to impaired areas (elevated N) – development v. ag
 - ✍ USGS model to determine time transport of pollutants to stream
 - ✍ DEP’s list of package plants for illustrative examples
 - ✍ Farm Bill planning money (possible funding source)
 - ✍ Sample copy of Montgomery Twp.’s wastewater management system maintenance contract with homeowner’s association
 - ✍ Farm Bill (potential for wastewater planning money)

The information obtained will be used to develop additional projects as appropriate.

2. Potential Additional Projects:

- ? **Submit New Gretna (and other appropriate areas) to National Small Flows Clearinghouse and other funding sources for community wastewater system demonstration project**
- ? **Examine options for reaching consent among participants in proposed community wastewater systems**
- ✍ **Prepare fact sheet on USDA funding for community wastewater systems; analyze potential for submitting New Gretna and other projects**
- ? **Develop “Homeowners’ Fact Sheet” on septic maintenance**
- ? **Educate municipal engineers, local health departments on appropriate septic repair and maintenance measures**
- ? **Locate failing septic systems in the watershed and examine options for retrofitting**
- ? **Examine options for creating local septic authorities to manage and maintain septic systems and recommend strategy to implement**

- ? **Determine amount of aerial deposition of nitrates in the watershed (e.g., through modeling)**
- ? **Help municipalities to identify centralized areas suitable for community wastewater systems and do up-front feasibility studies (planning for current and future development)**
- ? **Determine controlling nutrient in the watershed**
- ? **Examine options for linking databases and sharing information about septics, wells, etc. among county, DEP & municipalities**
- ? **Examine options for re-use of wastewater**
- ? **Develop incentives for use of alternative septic technologies**
- ? **Test additional innovative septic technologies through demonstration projects**
- ? **Develop and disseminate Best Management Practices and/or model ordinances to address goose waste problem**
- ? **Prepare fact sheet on British “Ebb and Flow” technology**